

What is claimed is:

1. A laminated piezoelectric element having a thickness of $100 \mu m$ or less, comprising a laminate which comprises a plurality of piezoelectric ceramic layers, and electrodes provided at least one of the surface and the inside of said laminate, wherein said electrodes comprises a silver-palladium alloy containing 71 to 99.9% by volume of silver and 0.1 to 29% by volume of palladium.
2. The laminated piezoelectric element according to claim 1, wherein said electrodes comprises a silver-palladium alloy containing 87% by volume or more silver, and residual stress remaining inside is 100MPa or less.
3. The laminated piezoelectric element according to claim 1, wherein said piezoelectric ceramic layer contains Pb.

15

4. The laminated piezoelectric element according to claim 1, wherein said electrodes contains a piezoelectric ceramic material, and the proportions of the silver-palladium alloy to the piezoelectric ceramic material are in a range from 100: 16 to 60.

20

5. The laminated piezoelectric element according to claim 4, wherein said piezoelectric ceramic material has a mean crystal grain size of $0.9 \mu m$ or less.

6. The laminated piezoelectric element according to claim 1, wherein each piezoelectric ceramic layer is in a range from 1 to $25 \mu m$ in thickness.

7. The laminated piezoelectric element according to claim 1, wherein variations in dielectric constant is within $\pm 10\%$ across the surface when a voltage is applied between the electrodes.

5 8. The laminated piezoelectric element according to claim 1, wherein a bonding strength between said electrodes and said piezoelectric ceramic layer is 1.25MPa or higher.

9. An actuator comprising the laminated piezoelectric element of claim 1.

10 10. The actuator according to claim 9, wherein a supporting member is bonded onto the bottom surface of said laminated piezoelectric element.

11. An actuator comprising an oscillator plate, internal electrodes provided on said oscillator plate, a piezoelectric ceramic layer provided on said internal electrodes and a plurality of surface electrodes provided on said piezoelectric ceramic layer, wherein said oscillator plate, said internal electrodes, said piezoelectric ceramic layer and said surface electrodes comprise the laminated piezoelectric element of claim 1.

15 12. A printing head comprising a flow passage member in which a plurality of ink compressing chambers having ink nozzles are arranged and the actuator of claim 11 mounted on the flow passage member, wherein the ink compressing chambers and said surface electrodes is aligned with each other.